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Assessment of Navy Contract Management Processes

Rene Rendon, Associate Professor, NPS

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Panel 19. Organizing for Success: Managerial and Staffing Considerations

Thursday, May 5, 2016	
1:45 p.m. – 3:15 p.m.	<p>Chair: Reuben Pitts, President, Lyceum Consulting, LLC</p> <p><i>Organization Analytics: Taking Cost-per-Dollar-Obligated (CPDO) Measures to the Next Level in Defense Contracting</i></p> <p>Timothy Reed, Principal Director, Beyond Optimal Strategic Solutions James Keller, Business Center Head, USMC Operations Analysis Division John Fallon, Professor, Villanova University</p> <p><i>Assessment of Navy Contract Management Processes</i></p> <p>Rene Rendon, Associate Professor, NPS</p> <p><i>Designing and Managing Successful International Joint Development Programs</i></p> <p>Andrew Philip Hunter, Senior Fellow and Director, Defense-Industrial Initiatives Group, CSIS Gregory Sanders, Deputy Director and Fellow, Defense-Industrial Initiatives Group, CSIS Samantha Cohen, Research Assistant, Defense-Industrial Initiatives Group, CSIS</p>



Assessment of Navy Contract Management Processes

Rene G. Rendon—is an Associate Professor at the Graduate School of Business and Public Policy, NPS, where he teaches defense acquisition and contract management courses. He also serves as the Academic Associate for the MBA specialization in contract management. Prior to joining the NPS faculty, he served for over 20 years as an acquisition contracting officer in the United States Air Force. His career included assignments as a contracting officer for the Peacekeeper ICBM, Maverick Missile, and the F-22 Raptor. He was also a contracting squadron commander and the director of contracting for the Space Based Infrared Satellite program and the Evolved Expendable Launch Vehicle rocket program. Rene has published in the *Journal of Public Procurement*, the *Journal of Contract Management*, the *Journal of Purchasing and Supply Management*, and the *International Journal of Procurement Management*. [rgrendon@nps.edu]

Abstract

This research builds upon the emerging body of knowledge on contract management workforce competence and organizational process capability. In 2003, the Contract Management Maturity Model (CMMM) was first developed for the purpose of assessing Department of Defense (DoD) and defense contractor organizational contract management process capability. The CMMM has been previously applied at Air Force, Army, Navy, and defense contractor organizations. Specific to the Navy, assessments were conducted at three Navy contracting centers using the CMMM. These organizations included the Naval Air Systems Command (NAVAIR), Naval Sea Systems Command (NAVSEA), and the Naval Supply Systems Command (NAVSUP). The primary purpose of this paper is to summarize the assessment ratings, analyze the assessment results in terms of contract management process maturity, and discuss the implications of these assessment results for process improvement and knowledge management opportunities. This paper also provides insight on consistencies and trends from these assessment results to DoD contract management. Finally, this paper discusses these assessment results in an attempt to characterize the current state of practice of contract management within the U.S. Navy.

Background

In fiscal year (FY) 2015, the Department of Defense (DoD) awarded over \$242 billion in contracts for mission-critical supplies and services. These contract obligations were executed through approximately two million contractual actions. Within the Navy, over \$76 billion were obligated in the execution of over 220 thousand contractual actions (USA Spending, 2016). The amount of dollars obligated on contracts reflects the importance of the contract management function within the DoD and requires high levels of accountability, integrity, and transparency in its contracting processes. However, the Government Accountability Office (GAO) continues to identify DoD contract management as a high risk to the federal government due to the lack of skills and capabilities of the acquisition workforce, management and oversight of contracting processes and approaches, management of services acquisition, and need for improvement in operational contracting support (GAO, 2015). Additionally, the DoD inspector general (DoDIG) has identified deficiencies in the DoD agency's poor contract planning, contract administration, and contractor oversight (DoDIG, 2009, 2012, 2013, 2014).

The DoD's response to the GAO's high-risk rating and the DoDIG reported deficiencies include an increased hiring of contracting specialists and auditors, increased contracting training requirements, and an emphasis on individual competency assessments to identify contracting workforce skills and abilities (GAO, 2015). Additionally, the DoD has implemented a series of Better Buying Power initiatives outlining the steps needed to achieve better contracting results (Office of the Under Secretary of Defense for Acquisition,



Technology, and Logistics [OUSD(AT&L)], 2014). Thus, the DoD's approach to resolving its contracting deficiencies has been to focus only on increasing the contracting workforce and improving the competence of that workforce. What is missing from the DoD's response to its contracting deficiencies is an emphasis on organizational process maturity, specifically, contracting process capability. Auditability theory (Power, 1996, 2007; Rendon & Rendon, 2015) states that organizations also need capable processes and effective internal controls, in addition to workforce competence, to ensure mission success. Based on this author's experience, many of the DoD's contracting deficiencies are rooted more in the lack of organizational process capability, and less on the competence of the contracting workforce.

Research Scope and Objectives

This paper presents the results of process capability assessments for the U.S. Navy's contract management processes using the Contract Management Maturity Model (CMMM). The CMMM is used to assess an organization's contract management process capability and to develop a roadmap for implementing improvement initiatives for the contract management process. Using the Web-based survey assessment tool, the CMMM was applied to three Navy contracting agencies: Naval Air Systems Command (NAVAIR), Naval Sea Systems Command (NAVSEA), and the Naval Supply Systems Command (NAVSUP). The purpose of this paper is to summarize the assessment ratings, analyze the assessment results in terms of contract management process maturity, and discuss the implications of these assessment results for process improvement and knowledge management opportunities. The assessment results and related recommendations for contract management process improvement and knowledge management opportunities are proposed to the U.S. Navy for developing a road map for increasing contract management process capability. A thorough understanding of the Navy's current level of contract management process capability will help these organizations improve their procurement of defense-related supplies and services. This research also discusses the process assessment results by providing insight on consistencies and trends in an attempt to characterize the current state of practice of contract management within the U.S. Navy, as well as the DoD.

Research Method

This research is based on the application of the Contract Management Maturity Model (CMMM) for the assessment of organizational contract management processes. The CMMM was developed and validated in 2003 and subsequently applied to other defense contracting organizations (Garrett & Rendon, 2005; Rendon, 2003, 2008). The CMMM assessment tool is a Web-based survey comprised of 62 items related to each of the six contract management key process areas (approximately 10–11 items per key process area). See Appendix A for a description of the six contract management process areas. The survey items use a Likert scale—option response with associated numerical values from 5 (Always) to 0 (I Don't Know). These options represent the organization's use of specific contract management best practices, as reflected in the acquisition and contract management literature. These best practices relate to contract management process strength, successful outcomes, management support, process integration, and process measurement. The numerical value associated with the responses to the CMMM survey items are then calculated to determine the process maturity level for each of the contract management processes. The CMMM designates process maturity levels ranging from Level 1 (Ad Hoc) to Level 5 (Optimized). See Appendix B for a description of each process maturity level.



The CMMM uses a purposeful sampling method designed to acquire data on organizational contract management processes. Purposeful sampling ensures that population samples are knowledgeable and informative about the phenomena being researched, thus increasing the utility of the information obtained from small samples (Creswell, 2003; McMillan & Schumacher, 2001). Thus, the survey is only deployed to warranted contracting officers and fully qualified contract specialists. The sampling in this research consisted of agency employees designated either as warranted contracting officers or as individuals that were considered fully qualified in the government contracting career field, in accordance with the Defense Acquisition Workforce Improvement Act (DAWIA). Warranted contracting officers are those individuals that have specific authority to enter into, administer, or terminate contracts and make related determinations and findings on behalf of the U.S. government (FAR, 2015). Full qualification in the contracting career field is interpreted to mean achievement of at least Level 2 certification in contracting under DAWIA. Level 2 certification requires completion of a baccalaureate degree with at least 24 semester hours in accounting, law, business, finance, contracts, purchasing, economics, industrial management, marketing, quantitative methods, and organization and management coursework; two years of contracting experience; and completion of the required contract training courses (DAWIA, 1990).

Results

The CMMM survey link was e-mailed to the directors of contracting for the specific agencies, and the link was then forwarded to the eligible contracting personnel. Reminder e-mails were sent approximately two weeks into the survey period. The survey instrument included the appropriate provisions for confidentiality and the protection of human subjects. Of the 369 eligible survey participants, 185 Navy contracting officers completed the survey, generating a response rate of approximately 50%.

Descriptive statistics were applied on the survey results, including a factor analysis to determine if the survey items closely correlated with questions designed to operationalize each of the contract management process areas. The factor analysis identified groupings of highly correlated survey items based on the survey responses. The results of the factor analysis indicated that the survey items related to each of the six contracting process areas loaded together (0.6 and above). (In factor analysis, factor loadings represent how much a factor explains a specific variable. Loadings can range from -1 to 1. Loadings close to -1 or 1 indicate that the factor strongly affects the variable, either negatively or positively. Loadings close to zero indicate that the factor has a weak effect on the variable.) Based on the factor analysis, operationalized variables were created and used to perform reliability tests using Cronbach's α for each of the operationalized variables. As reflected in Table 1, the results of the reliability test indicated Cronbach's α value for each of the six key contracting process areas ranging from 0.91 to 0.94. These reliability coefficients are above 0.80, and thus, the survey instrument is considered to have high reliability and internal consistency (McMillan & Schumacher, 2001).



Table 1. Descriptive Statistics for the Contracting Process Area Scale Factors

Contracting process area scale factor	No. of items	<i>M</i> (<i>SD</i>)	Valid <i>N</i>	Cronbach's α
Procurement Planning	10	3.79 (.88)	185	.91
Solicitation Planning	10	3.74 (.87)	178	.92
Solicitation	10	3.61 (.93)	174	.92
Source Selection	11	3.85 (.90)	172	.93
Contract Administration	11	3.37 (1.03)	169	.94
Contract Closeout	10	2.46 (1.59)	168	.94

The Navy CMMM assessment results are reflected in Table 2, which lists the contract management process area, survey item number, and item process maturity enabler. Table 2 also shows the mean responses for each survey item, the standard deviation for each survey item, and the total number of responses for each survey item. The mean responses are based on the Likert scale's numerical value range from 5 (Always) to 1 (Never) and 0 (I Do not know) for each survey item in each contract management process area.



Table 2. U.S. Navy CMMM Assessment Results

Key Process Area/Item Number and Description	Mean	SD	n
Procurement Planning			
1.1 Process Strength	4.32	1.04	187
1.2 Process Strength	3.87	1.28	187
1.3 Process Strength	3.72	1.13	187
1.4 Process Results	3.88	1.08	187
1.5 Management Support	4.21	1.00	187
1.6 Process Integration	3.90	1.13	187
1.7 Process Integration	3.65	1.21	187
1.8 Process Integration	3.90	1.12	187
1.9 Process Measurement	2.95	1.65	187
1.10 Process Measurement	3.49	1.15	187
Total	37.89		
Solicitation Planning			
2.1 Process Strength	4.12	1.09	180
2.2 Process Strength	3.76	1.31	180
2.3 Process Strength	3.87	1.17	180
2.4 Process Results	4.11	0.94	180
2.5 Management Support	3.99	1.03	180
2.6 Process Integration	3.79	1.07	180
2.7 Process Integration	3.67	1.14	180
2.8 Management Support	3.67	1.04	180
2.9 Process Measurement	2.92	1.65	180
2.10 Process Measurement	3.54	1.22	180
Total	37.44		
Solicitation			
3.1 Process Strength	4.01	1.22	176
3.2 Process Strength	3.61	1.43	176
3.3 Process Strength	3.74	1.29	176
3.4 Process Results	3.71	0.92	176
3.5 Management Support	3.94	1.03	176
3.6 Process Integration	3.72	1.14	176
3.7 Process Integration	3.63	1.12	176
3.8 Process Integration	3.42	1.11	176
3.9 Process Measurement	2.87	1.65	176
3.10 Process Measurement	3.49	1.20	176
Total	36.14		

Source Selection			
4.1 Process Strength	4.25	1.03	174
4.2 Process Strength	3.92	1.23	174
4.3 Process Strength	3.80	1.20	174
4.4 Process Results	4.23	1.04	174
4.5 Management Support	4.15	1.04	174
4.6 Process Results	3.60	1.17	174
4.7 Process Results	4.23	1.04	174
4.8 Process Integration	3.89	1.20	174
4.9 Process Integration	3.74	1.25	174
4.10 Process Measurement	3.04	1.71	174
4.11 Process Measurement	3.52	1.26	174
Total	42.37		
Contract Administration			
5.1 Process Strength	3.63	1.28	171
5.2 Process Strength	3.37	1.32	171
5.3 Process Strength	3.48	1.25	171
5.4 Process Results	3.48	1.16	171
5.5 Management Support	3.47	1.25	171
5.6 Process Integration	3.73	1.12	171
5.7 Process Integration	3.48	1.20	171
5.8 Process Integration	3.32	1.31	171
5.9 Process Integration	3.28	1.67	171
5.10 Process Measurement	2.70	1.66	171
5.11 Process Measurement	3.15	1.39	171
Total	37.10		
Contract Closeout			
6.1 Process Strength	3.10	1.82	170
6.2 Process Strength	2.80	1.89	170
6.3 Process Strength	2.71	1.86	170
6.4 Process Results	3.05	1.99	170
6.5 Management Support	2.39	1.82	170
6.6 Process Integration	2.26	1.87	170
6.7 Process Integration	2.36	1.86	170
6.8 Process Measurement	2.04	1.85	170
6.9 Process Measurement	2.11	1.81	170
6.10 Process Measurement	1.83	1.76	170
Total	24.65		

The survey item mean responses were totaled, and the resulting score was then converted to its associated process maturity level. Figure 1 reflects the process maturity level for each contract management process area based on the assessment results. Figure 2 reflects the comparison of survey item mean scores for each contract management process.

CONTRACT MANAGEMENT MATURITY MODEL®						
MATURITY LEVEL	PROCUREMENT PLANNING	SOLICITATION PLANNING	SOLICITATION	SOURCE SELECTION	CONTRACT ADMIN	CONTRACT CLOSEOUT
5 OPTIMIZED						
4 INTEGRATED						
3 STRUCTURED	N	N		N		
2 BASIC			N		N	N
1 AD HOC						

Figure 1. U.S. Navy CMMM Maturity Levels

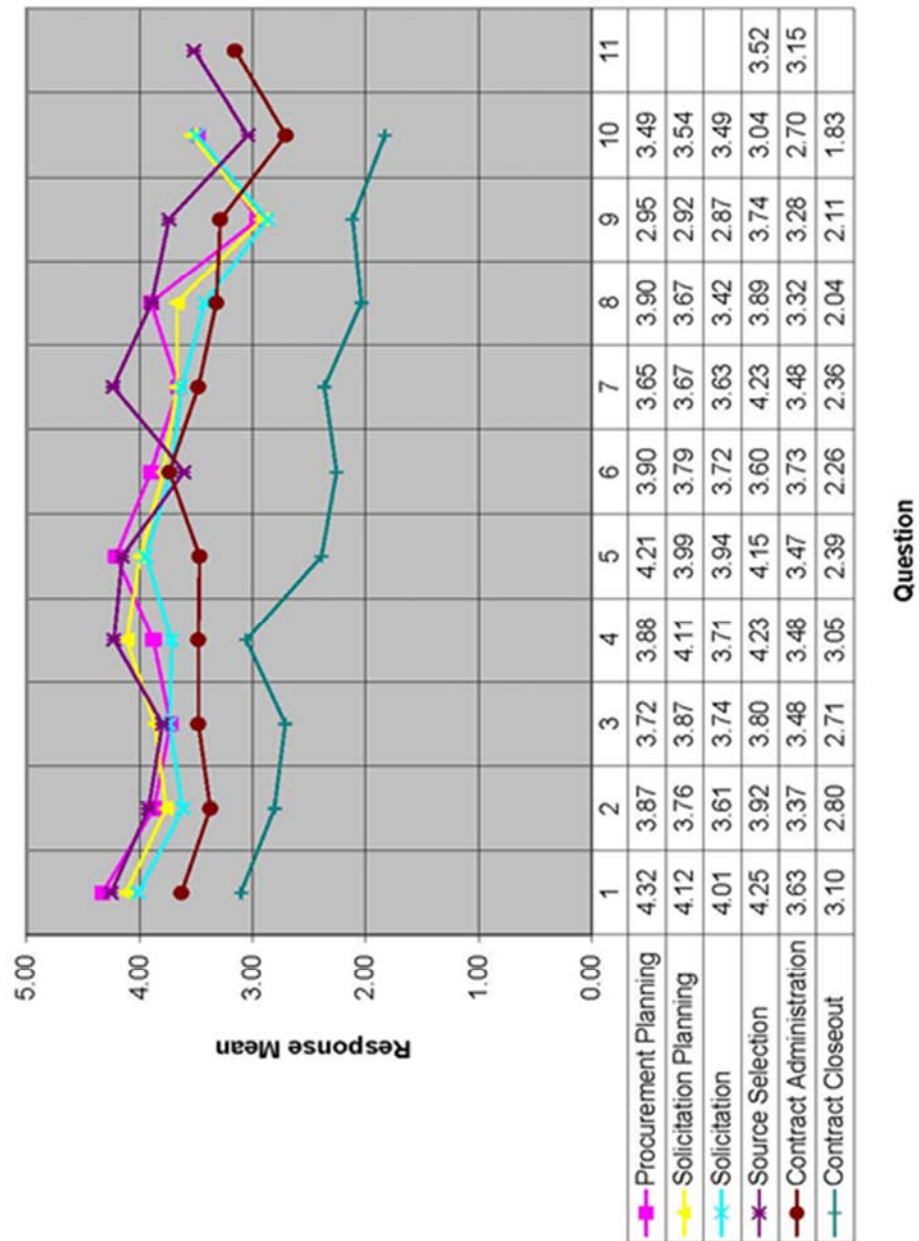


Figure 2. Comparison of Contract Management Process Survey Item Mean Scores

Discussion

The analysis of the CMMM assessment results can be discussed from the perspective of process capability maturity and process capability enablers. Process maturity is discussed first.

As reflected in Figure 1, the contracting process areas of Procurement Planning, Solicitation Planning, and Source Selection are rated at the Structured level of process maturity. This maturity level indicates that for these process area activities (see Appendix A) the processes are fully established, institutionalized, and mandated throughout the entire organization. These processes are supported by formal documentation and some processes may even be automated. Furthermore, the organization allows for the tailoring of these processes and documents in consideration for the unique aspects of each contract, such as contracting strategy, contract type, terms and conditions, dollar value, and type of requirement (product or service). Finally, senior organizational managers are involved in providing guidance, direction, and even approval of key process area strategy, decisions, and documents.

However, since these process areas are rated at only the Structured level, the assessment results also show that these processes are not fully integrated with other organizational processes that are part of the organization's contract management effort, such as financial management, schedule management, performance management, and technical management. Additionally, for these specific processes, the procurement team does not include representatives from other functional areas nor does it include the contract requirement end-user.

Also reflected in Figure 1, the contracting process areas of Solicitation, Contract Administration, and Contract Closeout are rated at the Basic level of process maturity. This indicates that for these process area activities (see Appendix A), some contract management processes have been established, but these processes are required only on selected contracts. Furthermore, there is no organizational policy establishing the consistent use of these processes and standards on all contracts awarded by the organization. Finally, although there may be some documentation of these processes and standards, not all processes are fully documented throughout the organization.

However, since these specific process areas are rated at the Basic level, the assessment results also show that these specific processes are not fully established, institutionalized, and mandated throughout the entire organization. Additionally, these processes are not supported by formal documentation nor are there any automated processes for these activities. Lastly, senior organizational managers are not involved in providing guidance, direction, or approval of key process area strategy, decisions, and documents.

As previously stated and reflected in Table 2, each CMMM survey item is associated with one of the five process capability enablers. These process capability enablers are Process Strength, Process Results, Management Support, Process Integration, and Process Measurement. As reflected in Table 2, the Navy's process areas with the highest scoring survey response means for Process Strength-associated survey items were in the process areas of Procurement Planning, Solicitation Planning, and Source Selection. These results indicate a stronger use of Process Strength best practices such as ensuring standardized, mandatory, and documented processes. Additionally, as reflected in Table 2, the Navy's process areas with the lowest scoring survey response means for Process Strength-associated survey items were in the process areas of Contract Administration and



Contract Closeout. These results indicate weaker use of Process Strength best practices in these specific contract management process areas.

As reflected in Table 2, the Navy's process areas with the highest scoring survey response means for Process Results–associated survey items were in the process areas of Source Selection. These results indicate a stronger use of Process Results best practices in ensuring appropriate evaluation standards and criteria and in maintaining integrity in the proposal evaluation process. Additionally, the Navy's process areas with the lowest scoring survey response means for Process Results–associated survey items were in the process areas of Contract Administration and Contract Closeout. These results indicate a weaker use of Process Results best practices in conducting surveillance of contractor performance, processing accurate and timely contractor payments, controlling contract changes, verifying final delivery, and obtaining seller's release of claims.

As reflected in Table 2, the Navy's process areas with the highest scoring survey response means for Management Support–associated survey items were in the key process areas of Procurement Planning and Source Selection. These results indicate a stronger use of Management Support best practices in ensuring that senior organizational management are involved in providing input and, if required, approval of Procurement Planning and Source Selection decisions and documents. Additionally, the Navy's key process areas with the lowest scoring survey response means for Management Support–associated survey items were in the process areas of Contract Administration and Contract Closeout. These results indicate a weaker use of Management Support best practices in ensuring that senior organizational management are involved in providing input and, if required, approval of Contract Administration and Contract Closeout–related decisions and documents.

As reflected in Table 2, the Navy's process areas with the highest scoring survey response means for Process Integration–associated survey items were in the process areas of Procurement Planning and Source Selection. These results indicate a stronger use of Process Integration best practices such as using integrated project teams and conducting an integrated assessment of contract type, risk management, and terms and conditions during Procurement Planning, and using integrated projects teams in the evaluation of proposals during contract Source Selection. Additionally, the Navy's process areas with the lowest scoring survey response means for Process Integration–associated survey items were in the process areas of Contract Administration and Contract Closeout. These results indicate a weaker use of Process Integration best practices such as integrating Contract Administration processes with other functional processes and using an integrated project team approach for monitoring and evaluating the contractor's performance and making related award fee and incentive fee determinations.

As reflected in Table 2, the Navy's process areas with the highest scoring survey response means for Process Measurement–associated survey items were in the process areas of Procurement Planning, Solicitation Planning, Solicitation, and Source Selection. These results indicate a stronger use of Process Measurement best practices such as adopting lessons learned and best practices for continuously improving the planning of procurements, issuing the procurement solicitation, evaluating contractor proposals, and awarding the contract. Additionally, the Navy's process areas with the lowest scoring survey response means for Process Measurement–associated survey items were in the process areas of Contract Administration and Contract Closeout. These results indicate a weaker use of Process Measurement best practices such as using efficiency and effectiveness metrics in administering the contract and closing out the contract. Additionally, these results also indicate a weaker use of practices such as adopting lessons learned and best practices



for continuously improving the closing out of contracts and maintaining a lessons learned and best practices database for use in planning future procurements.

It is interesting to note that the CMMM summary-level survey response mean scores for the survey items related to each of the five process capability enablers show a clear distinction in the levels of the use of best practices. The relatively higher uses of best practices were identified in the pre-award process areas of Procurement Planning and Source Selection. The relatively lower uses of best practices were identified in the post-award phases of Contract Administration and Contract Closeout.

Process Improvement Initiatives

The true value of assessing an organization's contract management process capability is realized when the results are used in developing a road map for implementing contract management process improvement initiatives. The Navy was assessed at the Structured maturity level for Procurement Planning, Solicitation Planning, and Source Selection. In order for the Navy to progress to the Integrated maturity level, it should ensure these process areas are integrated with other organizational core processes, such as requirements management, financial management, schedule management, performance management, and risk management. The Procurement Planning process activities that need to be integrated with other organizational core processes include requirements analysis, acquisition planning, and market research. For the Solicitation Planning process, the activities include determining procurement method, developing evaluation strategy, and developing solicitation documents. The Navy should integrate Source Selection process activities such as evaluating proposals, applying evaluation criteria, negotiating contract terms, and selecting contractors. In addition to integrating these process areas with other organizational core processes, the Navy should also ensure that the procurement project's end-users and customers are included as integral members of the project procurement team and are engaged in providing input and recommendations for key contract management decisions and documents.

The Navy was assessed at the Basic maturity level for the Solicitation, Contract Administration, and Contract Closeout process areas. To progress to the Structured maturity level, the Navy should ensure that Contract Administration, Solicitation, and Contract Closeout processes are fully established, institutionalized, and mandated throughout the organization. Additionally, formal documentation should be developed for these process area activities. Also, senior management should be involved in providing guidance, direction, and even approval, when required, of key Solicitation, Contract Administration, and Contract Closeout strategies, decisions, related contract terms and conditions, and documents. The Solicitation process activities include advertising procurement opportunities, conducting solicitation and pre-proposal conferences, and amending solicitation documents as needed. The Contract Administration activities include monitoring and measuring contractor performance, managing the contract change process, and managing the contractor payment process. The Contract Closeout activities include verifying contract completion, verifying contract compliance, and making final payment. In addition to developing a road map for implementing contract management process improvement initiatives, the assessment results can also be used to identify training opportunities for increasing the process capability levels of the agency.

Implications for the DoD

The contracting processes and associated activities used in the Navy are the same processes and activities used in the Army, Air Force, and other DoD agencies. Therefore, these research findings provide insight into all DoD contract management. The results of the



assessment of the Navy contracting processes reflect similar findings from an analysis of past DoDIG reports on contract management deficiencies. In their analysis of 149 DoDIG reports on contract management deficiencies, Hidaka and Owen (2015) found that 35.3% of the frequency of deficiencies was related to the Contract Administration process and 27.6% was related to the Procurement Planning process. Additionally, they found that 17.8% and 13.7% of the frequency of deficiencies were related to Solicitation Planning and Source Selection processes, respectively. Although the DoDIG investigations are focused on ensuring agencies are in compliance with contracting statutes and regulations, and not necessarily best practices, both the CMMM and DoDIG findings reflect a consistency in terms of weakness of contracting policies and procedures.

This consistency is also supported in Hidaka and Owen's (2015) findings that the DoDIG identified Control Environment as the internal control component associated with the majority (51.8%) of contracting deficiencies. The Control Environment internal control component is related to an organization's structure, authority, responsibility, and accountability. Additionally, Hidaka and Owen (2015) found that the Control Activities component was associated with 23.9% of the DoDIG-reported contracting deficiencies. The Control Activities internal control component is related to an organization's policies and procedures. As can be seen in the CMMM assessment results and Hidaka and Owen's findings, DoD contract management process capability is associated with its contracting internal controls. Both capable contracting processes and effective internal controls are needed to ensure auditability in DoD contract management (Rendon & Rendon, 2015).

Limitations of Findings

The CMMM is limited as an assessment model simply by the fact that it is based on qualitative survey data. Thus, the model is only as effective as the responses to the survey items. The CMMM should be used as an initial tool in assessing an organization's contract management process capability. The CMMM results should be validated with follow-up assessments, including personal interviews, procurement file audits, and reviews of procurement process documentation. Additionally, comparison of CMMM results with other procurement metrics such as procurement administrative lead-time, small-business awards, and the number of protested contract awards will also provide additional backup to the CMMM assessment.

Conclusion

This paper analyzed the results of contract management process maturity assessments conducted within the U.S. Navy. Although the CMMM assessment results indicated different contract management process maturity levels, ranging from Level 2 Basic to Level 3 Structured, for each contract management process area, some consistencies were identified. Generally, the assessment reflected higher maturity levels in the Procurement Planning, Solicitation Planning, and Source Selection process areas, while lower maturity levels were indicated in the Contract Administration and Contract Closeout process areas. These maturity levels reflect the extent of the implementation of contracting best practices in the areas of Process Strength, Process Results, Management Support, Process Integration, and Process Measurement. The assessment results identified opportunities for increasing contract management process maturity. The Navy assessment results also identified consistencies in DoD contract management process capability and internal control effectiveness. These consistencies include problem areas within the Procurement Planning and Contract Administration process areas. As the body of knowledge on government contract management process maturity continues to emerge, the use of maturity models will continue to gain wider acceptance as a tool for assessing



organizational contract management process maturity and for providing a road map for implementing process improvement initiatives.

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Appendix A. Contract Management Processes

Procurement Planning: the process of identifying which organizational needs can be best met by procuring products or services outside the organization. This process involves determining whether to procure, how to procure, what to procure, how much to procure, and when to procure. Key process activities include conducting outsourcing analysis, determining and defining the procurement requirement, conducting market research, and developing preliminary budgets and schedules.

Solicitation Planning: the process of preparing the documents needed to support the solicitation. This process involves documenting program requirements and identifying potential sources.

Solicitation: the process of obtaining bids or proposals from prospective sellers on how organizational needs can be met.

Source Selection: the process of receiving bids or proposals and applying evaluation criteria to select a contractor.

Contract Administration: the process of ensuring that each contract party's performance meets contractual requirements.

Contract Closeout: the process of verifying that all administrative matters are concluded on a contract that is otherwise physically complete. This involves completing and settling the contract, including resolving any open items. Contract Closeout also includes contract termination.

Appendix B. Contract Management Maturity Levels

Level 1 Ad Hoc: Organizations at this maturity level do not have established organization-wide contract management processes. However, some established contract management processes do exist and are used within the organization, but these processes are applied only on an Ad Hoc and sporadic basis to various contracts. There is no rhyme or reason as to which contracts these processes are applied. Furthermore, there is informal documentation of contract management processes existing within the organization, but this documentation is used only on an Ad Hoc and sporadic basis on various contracts. Finally, organizational managers and contract management personnel are not held accountable for adhering to, or complying with, any basic contract management processes or standards.

Level 2 Basic: Organizations at this level of maturity have established some basic contract management processes and standards within the organization, but these processes are required only on selected complex, critical, or high-visibility contracts, such as contracts meeting certain dollar thresholds or contracts with certain customers. Some formal documentation has been developed for these established contract management processes and standards. Furthermore, the organization does not consider these contract management processes or standards established or institutionalized throughout the entire organization. Finally, at this maturity level, there is no organizational policy requiring the consistent use of these contract management processes and standards on contracts other than the required contracts.

Level 3 Structured: Organizations at this maturity level have contract management processes and standards that are fully established, institutionalized, and mandated throughout the entire organization. Formal documentation has been developed for these contract management processes and standards, and some processes may even be automated. Furthermore, since these contract management processes are mandated, the organization allows the tailoring of processes and documents in consideration for the unique



aspects of each contract, such as contracting strategy, contract type, terms and conditions, dollar value, and type of requirement (product or service). Finally, senior organizational management is involved in providing guidance, direction, and even approval of key contracting strategy, decisions, related contract terms and conditions, and contract management documents.

Level 4 Integrated: Organizations at this level of maturity have contract management processes that are fully integrated with other organizational core processes such as financial management, schedule management, performance management, and systems engineering. In addition to representatives from other organizational functional offices, the contract's end-user customer is also an integral member of the buying or selling contracts team. Finally, the organization's management periodically uses metrics to measure various aspects of the contract management process and to make contracts-related decisions.

Level 5 Optimized: Organizations at this maturity level systematically use performance metrics to measure the quality and to evaluate the efficiency and effectiveness of the contract management processes. At this maturity level, continuous process improvement efforts are also implemented to improve the contract management processes. Furthermore, the organization has established programs for lessons learned and best practices in order to improve contract management processes, standards, and documentation. Finally, contract management process streamlining initiatives are implemented by the organization as part of its continuous process improvement program.





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Assessment of Navy Contract Management Processes

Rene G. Rendon
Associate Professor

The Nation's Premiere Defense Research University

Monterey, California
WWW.NPS.EDU



- Background
- Theoretical Foundation
- Assessment Model
- Research Findings
- Implications of Research
- Summary



- Contract management is an increasingly important function for the DoD
 - In FY15, DoD obligated \$242 billion in contracts for supplies and services
- GAO has identified DoD contract management as a high risk (since 1992)
 - Contracting techniques and approaches
- DoD IG has identified material weaknesses in contracting internal controls

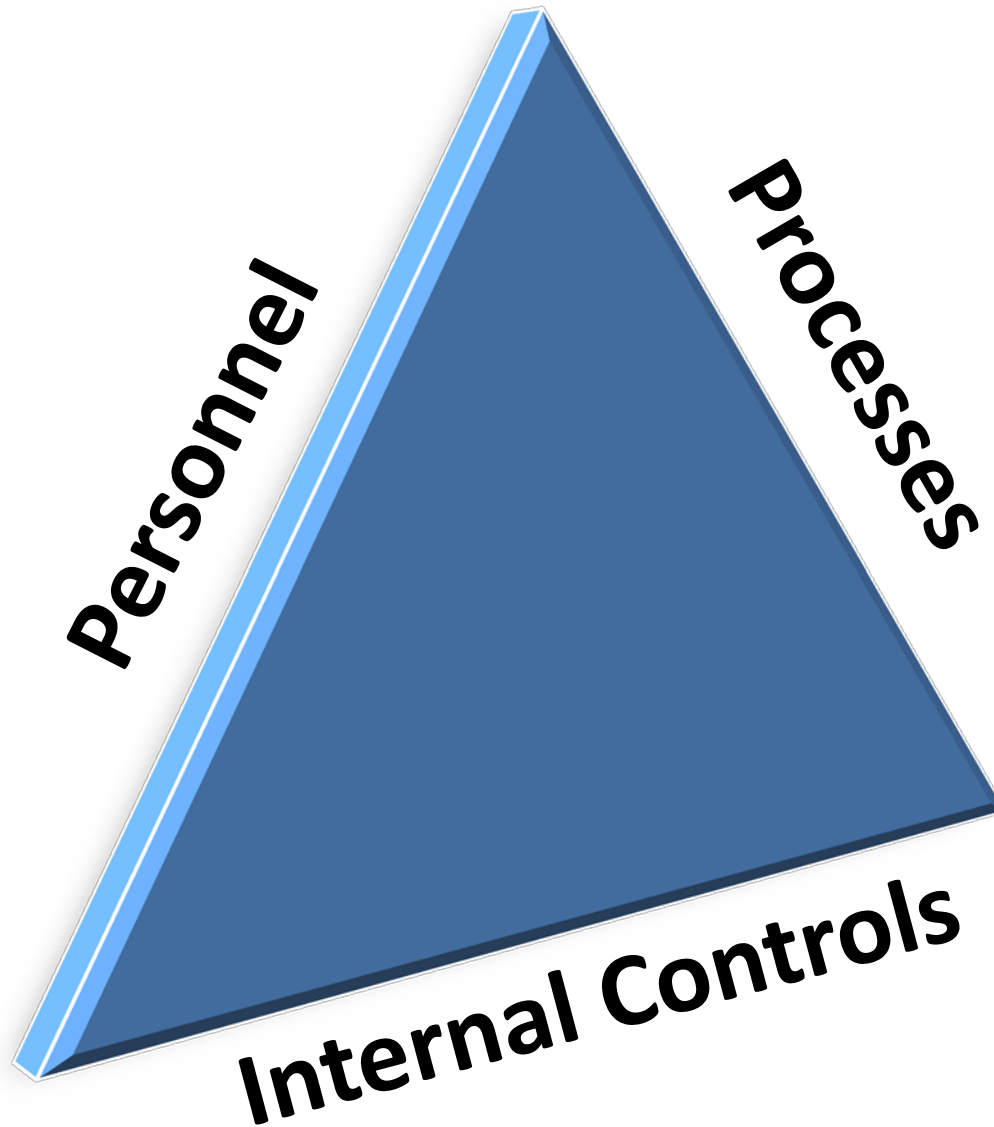


- DoD responds with an increased emphasis on workforce competence:
 - Contract management training
 - Contract management policies
- However, less emphasis is being placed on organizational competence:
 - Contract management process capability
 - Contract management process improvement



- Why emphasize process capability?
 - 85% of quality problems are related to processes, while only 15% of problems are controlled by individual workers (Deming, 1986).
 - Individual competence and organization process capability are both needed to ensure successful project results (Frame, 1999).
 - Capable processes supports auditability in organizations.

Auditability Triangle





- Why emphasize process capability?
 - Benchmarking contract management processes results in a significant positive impact on purchasing performance and a positive effect on business performance (Sanchez-Rodriguez, Martinez-Lorente, & Clavel, 2003).



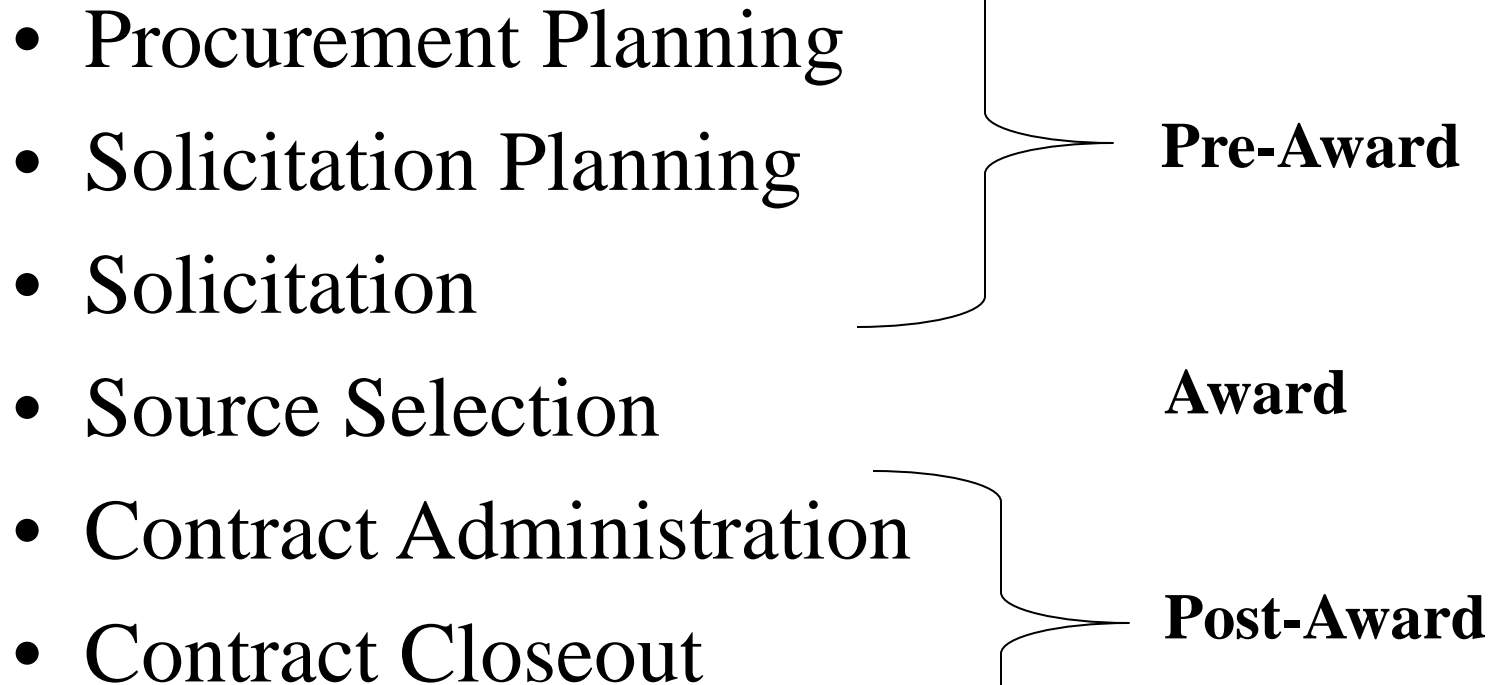
- Assessing contract management processes
 - Maturity model concept
 - Levels of maturity reflect process capability (ability to produce planned results)
 - As process capability increases, processes become predictable and measurable, organizational competence increases, and organizational processes become more mature (Ahern et al., 2001)



- The Contract Management Maturity Model (CMMM)
 - Key Process Areas
 - Levels of Process Maturity
 - Process Capability Enablers



- Web-based assessment instrument
- Anonymous survey deployed to organization's contracting workforce (1102s and military)
- Survey items based on contract management best practices (emphasis on practice, not policy)
- Likert scale options for survey items





Process Maturity Levels

Level 1 – Ad Hoc

- There are **no formally established, institutionalized, and mandated CM processes** throughout the organization.
- Some established CM processes and informal documentation exist and are used within the organization, but **applied only on an ad hoc and sporadic basis** to various contracts.
- **Managers and CM personnel are not held accountable for adhering to or complying with any CM processes or standards.**

Level 5 – Optimized

Level 4 – Integrated

Level 3 – Structured

Level 2 – Basic

Level 1 – Ad Hoc





Process Maturity Levels

Level 2 – Basic

Level 5 – Optimized

Level 4 – Integrated

Level 3 – Structured

Level 2 – Basic

Level 1 – Ad Hoc

- Some **CM processes and standards are established**, but are only required on selected complex, critical, or high-visibility contracts.
- **Some formal documentation has been developed** for these established CM processes and standards.
- The CM processes and standards are **not considered established or institutionalized** throughout the organization.
- There is **no organizational policy** requiring the consistent use of these CM processes and standards on other than the required contracts.



Process Maturity Levels

Level 3 – Structured

Level 5 – Optimized

Level 4 – Integrated

Level 3 – Structured

Level 2 – Basic

Level 1 – Ad Hoc

- CM processes are **fully established, institutionalized, and mandated** throughout the organization.
- **Formal documentation** has been developed for these CM processes, and some processes may even be automated.
- **Tailoring of CM processes** and documents is allowed in consideration of the unique aspects of each contract.
- **Senior management is involved** in providing guidance, direction, and even approval of key contracting strategy, decisions, documents, and contract Ts & Cs



Process Maturity Levels

Level 4 – Integrated

Level 5 – Optimized

Level 4 – Integrated

Level 3 – Structured

Level 2 – Basic

Level 1 – Ad Hoc

- CM processes **fully integrated** with other organizational core processes such as financial management, program management, and systems engineering.
- In addition to representatives from other organizational functional offices, the contract's end-user customer is also an **integral member of the contracts team.**
- **Periodical use of metrics** to measure various aspects of the CM processes and to make contract-related decisions.



Process Maturity Levels

Level 5 – Optimized

Level 5 – Optimized

Level 4 – Integrated

Level 3 – Structured

Level 2 – Basic

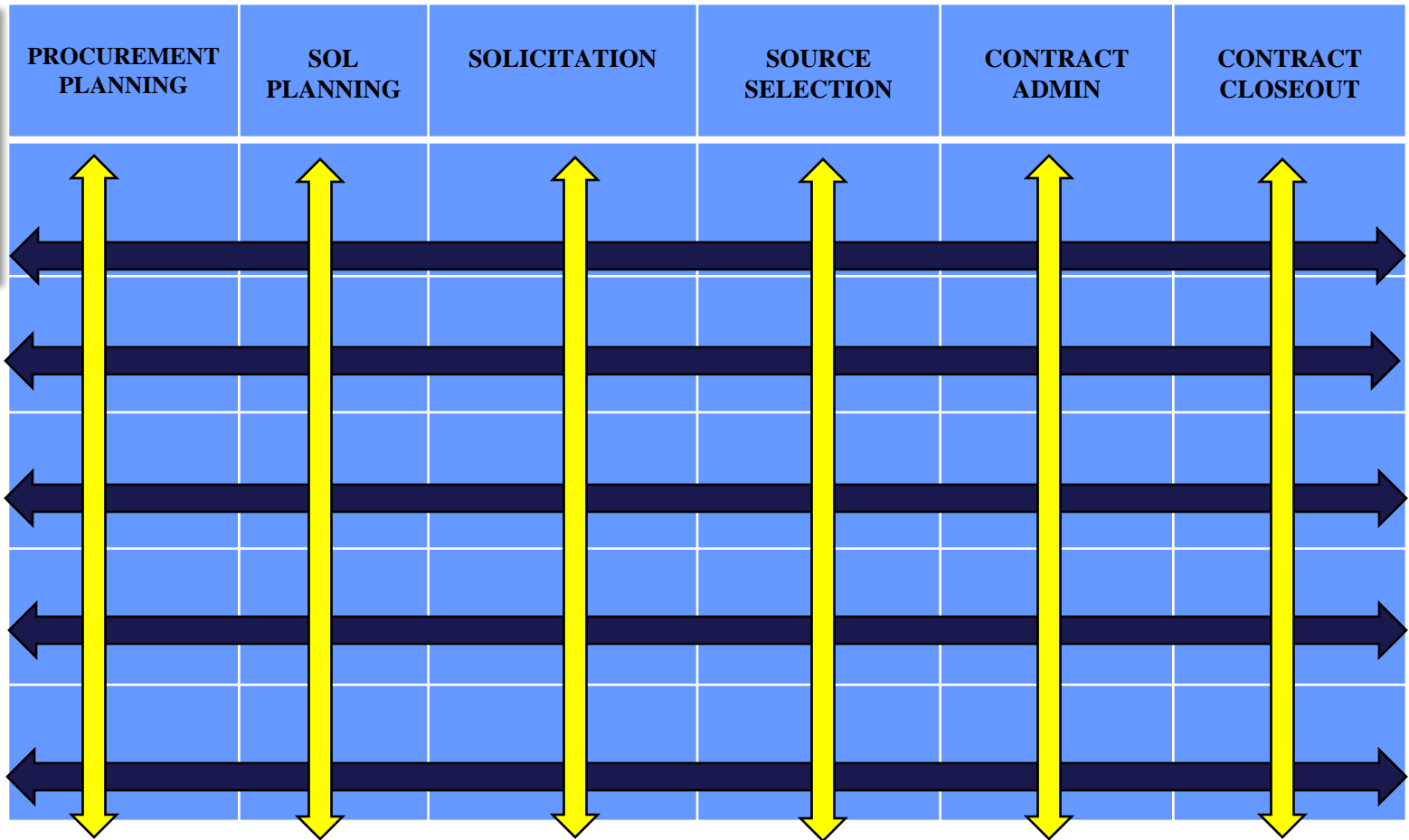
Level 1 – Ad Hoc

- **Systematic use of performance metrics** to measure the quality and evaluate the efficiency and effectiveness of the CM processes.
- **Continuous process improvement** efforts used to improve the CM processes.
- Established **Lessons Learned and Best Practices** programs to improve CM processes and standards.
- CM **process streamlining** initiatives implemented as part of its continuous process improvement program.

Analyzing Contract Management Processes

1st:
Analyze by KPA.
Vertically,
reviewing all
Questions for
that KPA

2nd:
Analyze by
Process
Capability
Enablers.
Horizontally
across KPAs
reviewing only
subset of
questions in
each KPA



CONTRACT MANAGEMENT MATURITY MODEL©

MATURITY LEVEL	PROCUREMENT PLANNING	SOLICITATION PLANNING	SOLICITATION	SOURCE SELECTION	CONTRACT ADMIN	CONTRACT CLOSEOUT
5 OPTIMIZED						
4 INTEGRATED						
3 STRUCTURED						
2 BASIC						
1 AD HOC						



- Web-based assessment instrument deployed to three Navy contracting agencies
- Survey administered to 1102s and military equivalents certified at DAWIA Level 2 or higher
- Total eligible participants: 369
- Total surveys completed: 185
- Response rate: 50%

CONTRACT MANAGEMENT MATURITY MODEL©

MATURITY LEVEL	PROCUREMENT PLANNING	SOLICITATION PLANNING	SOLICITATION	SOURCE SELECTION	CONTRACT ADMIN	CONTRACT CLOSEOUT
5 OPTIMIZED						
4 INTEGRATED	A	A		A		
3 STRUCTURED	B	B D	A	B		
2 BASIC	C D	C	C B D	C D	C B A D	
1 AD HOC						C B A D

CONTRACT MANAGEMENT MATURITY MODEL©

MATURITY LEVEL	PROCUREMENT PLANNING	SOLICITATION PLANNING	SOLICITATION	SOURCE SELECTION	CONTRACT ADMIN	CONTRACT CLOSEOUT
5 OPTIMIZED						
4 INTEGRATED						
3 STRUCTURED	A C B		D	A D B C		
2 BASIC	D	A D B C	A B C		A D B C	B C
1 AD HOC						A D

CONTRACT MANAGEMENT MATURITY MODEL©































MATURITY LEVEL	PROCUREMENT PLANNING	SOLICITATION PLANNING	SOLICITATION	SOURCE SELECTION	CONTRACT ADMIN	CONTRACT CLOSEOUT
5 OPTIMIZED						
4 INTEGRATED	 					
3 STRUCTURED		  	 	  		
2 BASIC	 		  		   	   
1 AD HOC						

Figure 1. U.S. Navy CMMM Maturity Levels







CONTRACT MANAGEMENT MATURITY MODEL®						
MATURITY LEVEL	PROCUREMENT PLANNING	SOLICITATION PLANNING	SOLICITATION	SOURCE SELECTION	CONTRACT ADMIN	CONTRACT CLOSEOUT
5 OPTIMIZED						
4 INTEGRATED						
3 STRUCTURED						
2 BASIC						
1 AD HOC						

Figure 2. Procurement Planning Survey Item Mean Scores

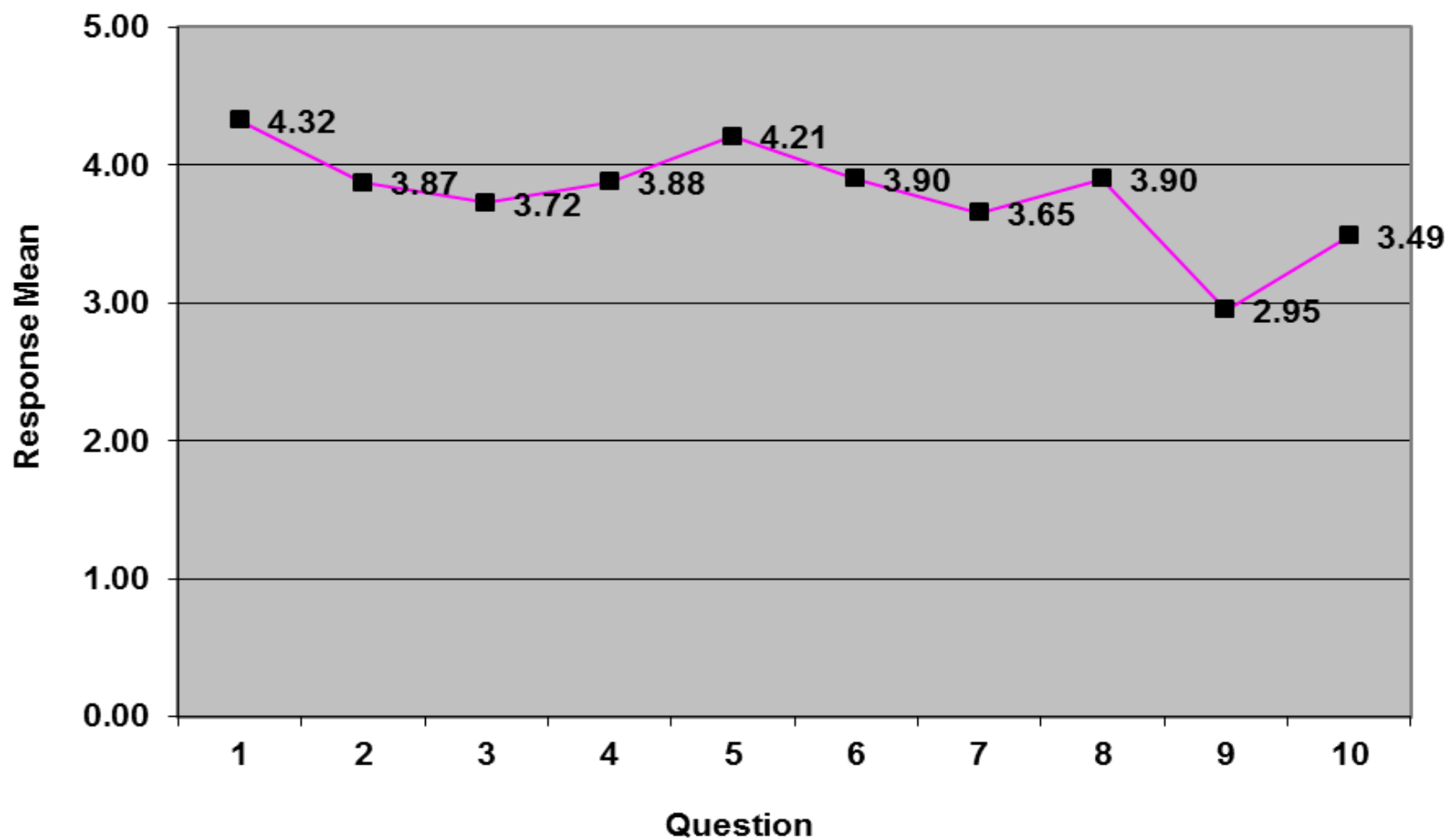


Figure 3. Solicitation Planning Survey Item Mean Scores

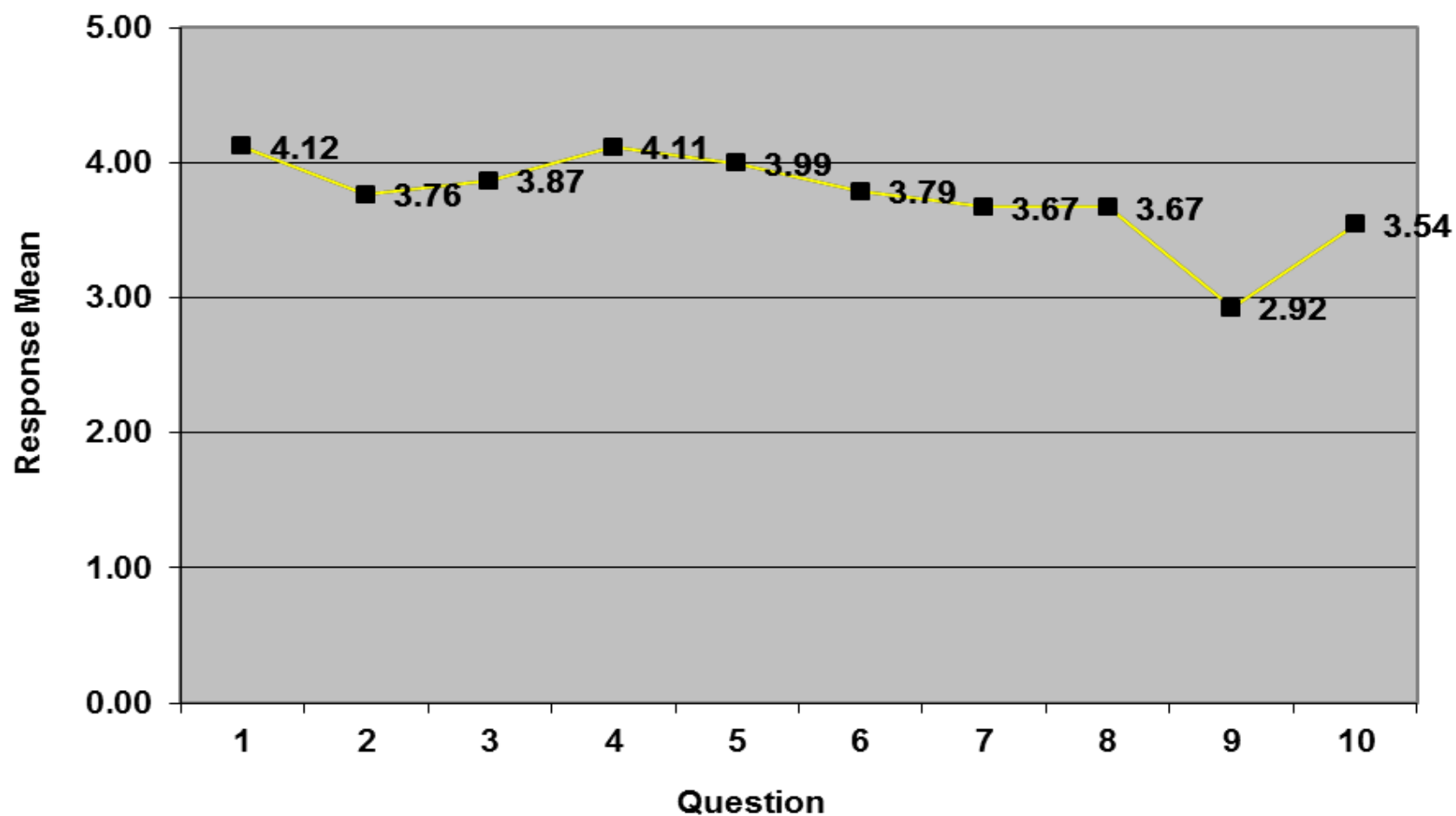


Figure 4. Solicitation Survey Item Mean Scores

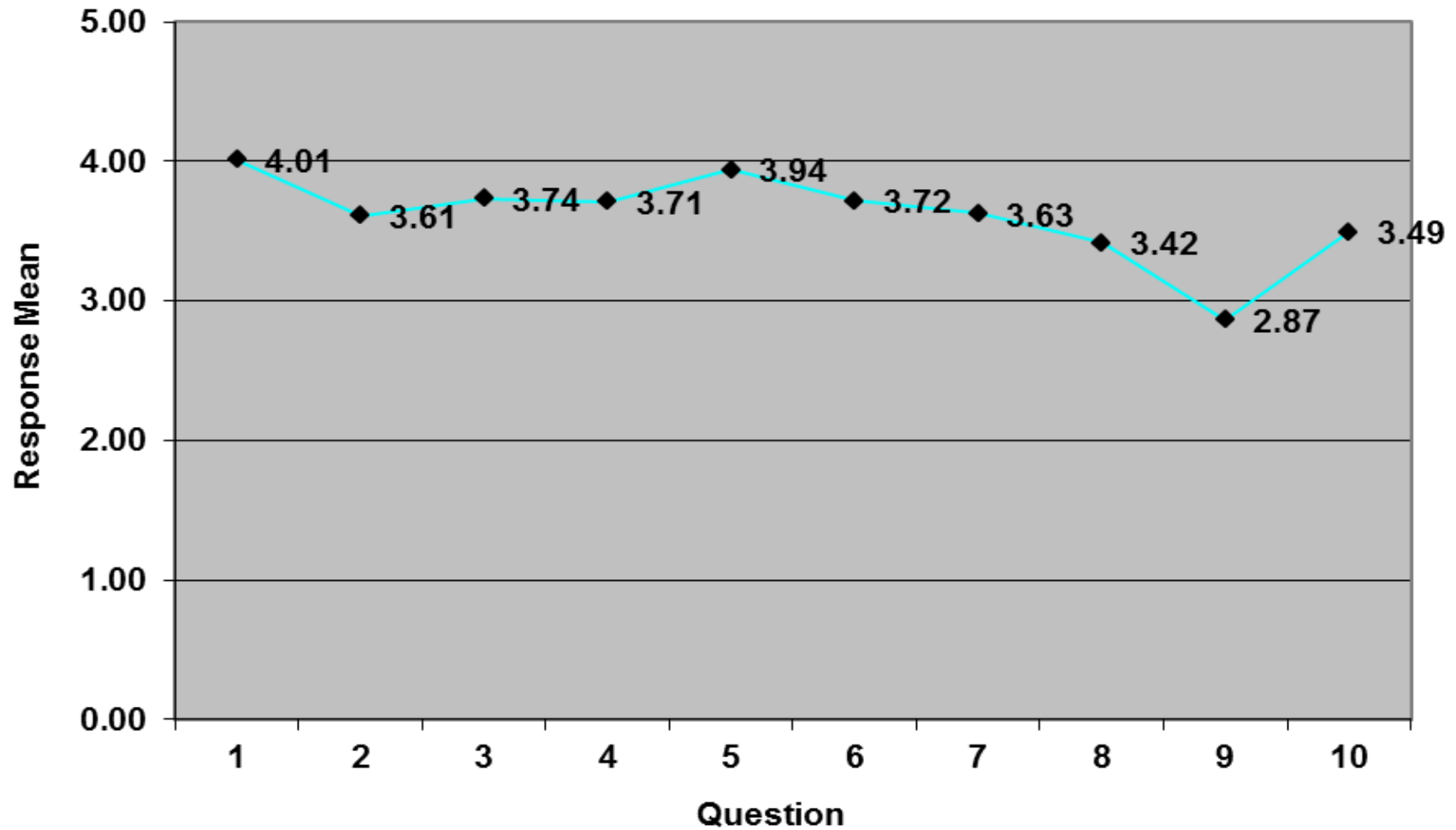


Figure 5. Source Selection Survey Item Mean Scores

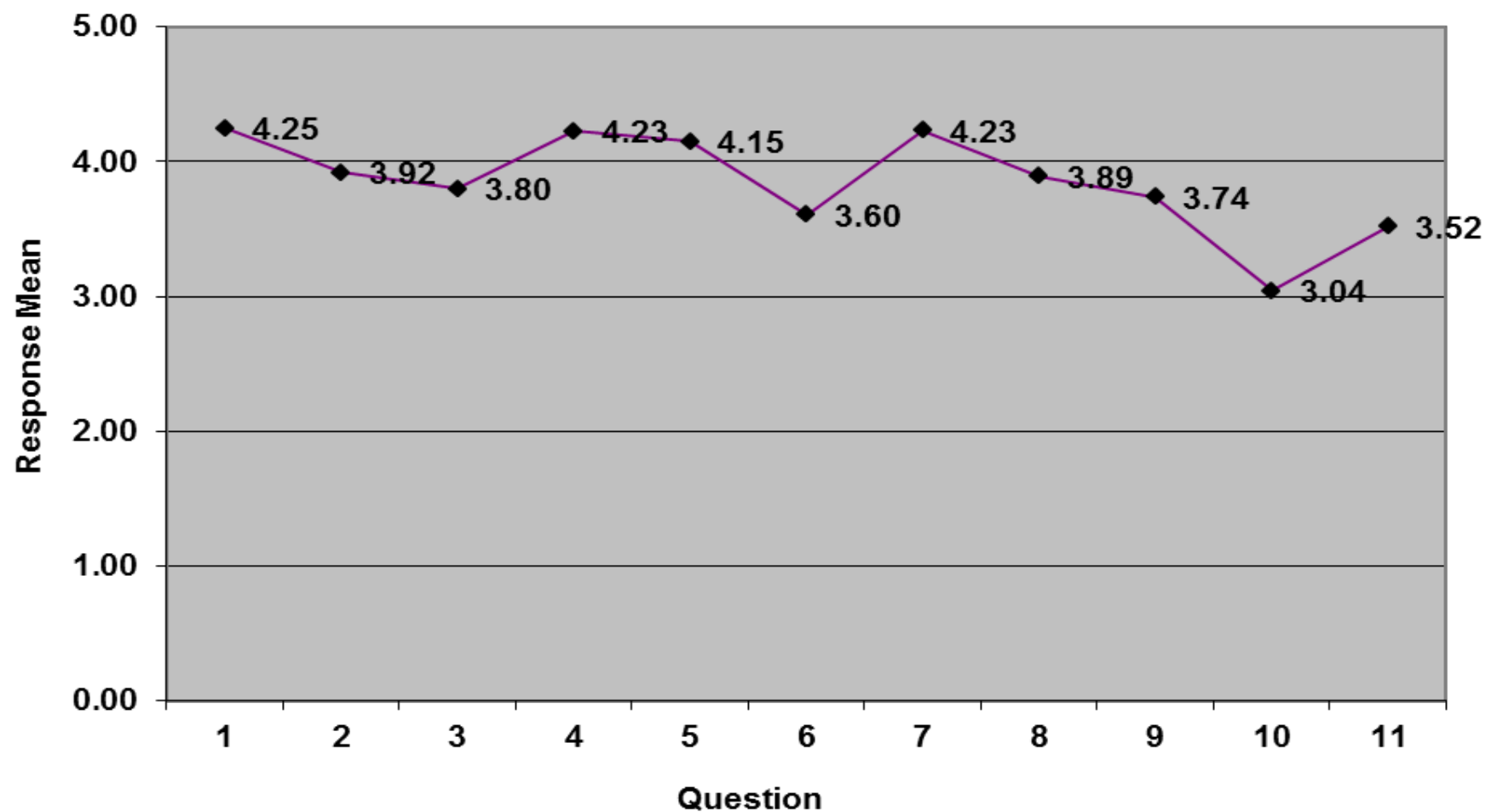


Figure 6. Contract Administration Survey Item Mean Scores

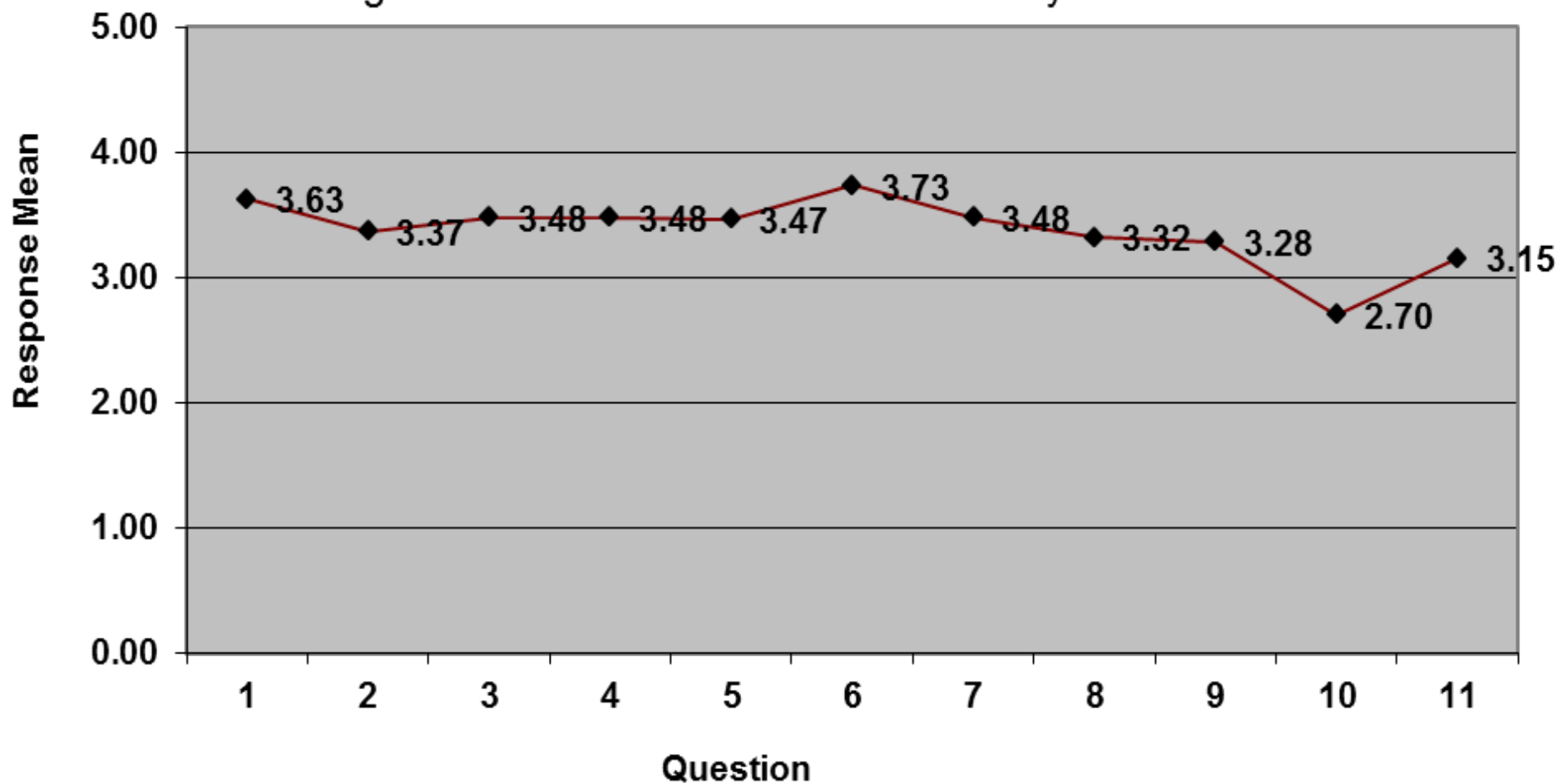


Figure 7. Contract Closeout Survey Item Mean Scores

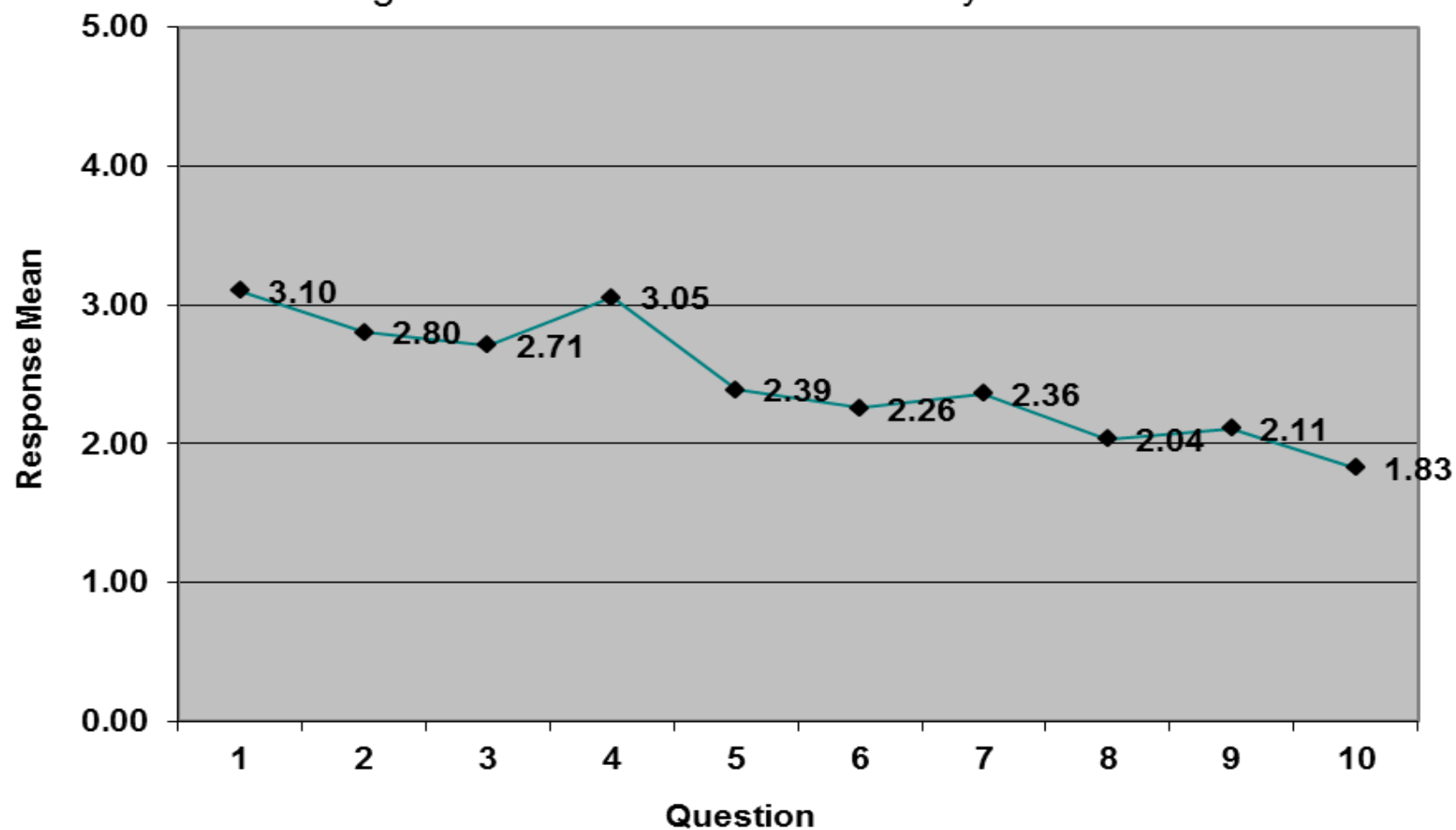
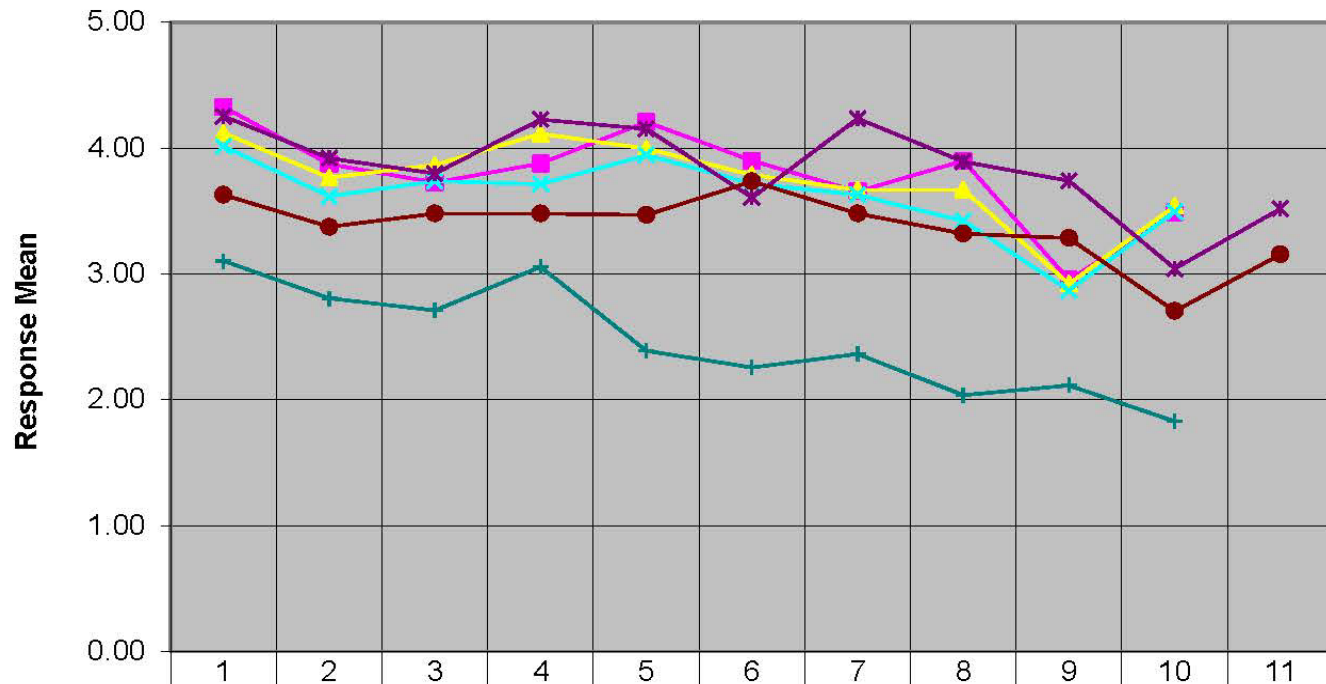


Figure 8. Comparison of Contract Management Process Survey Item Mean Scores



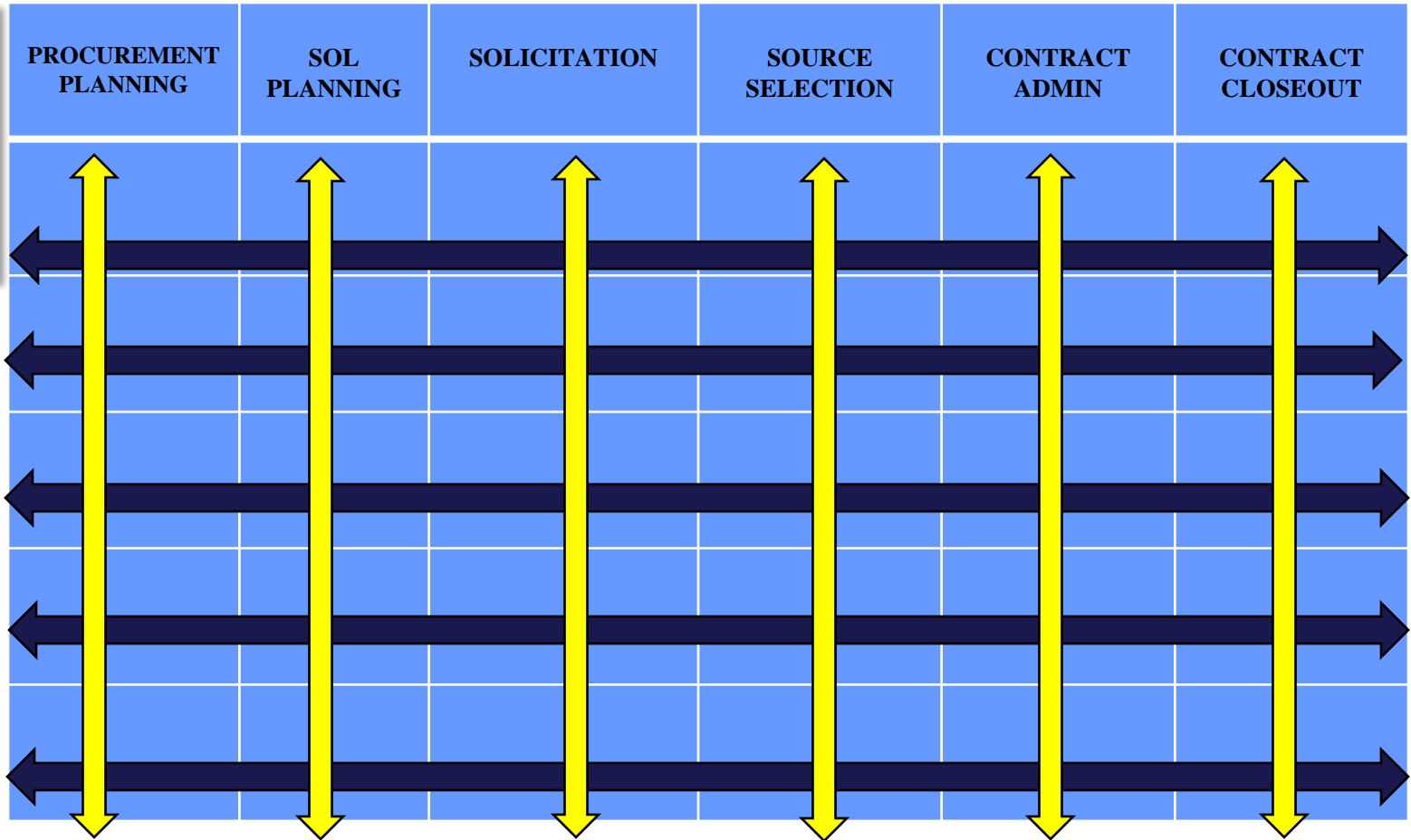
Procurement Planning	4.32	3.87	3.72	3.88	4.21	3.90	3.65	3.90	2.95	3.49	
Solicitation Planning	4.12	3.76	3.87	4.11	3.99	3.79	3.67	3.67	2.92	3.54	
Solicitation	4.01	3.61	3.74	3.71	3.94	3.72	3.63	3.42	2.87	3.49	
Source Selection	4.25	3.92	3.80	4.23	4.15	3.60	4.23	3.89	3.74	3.04	3.52
Contract Administration	3.63	3.37	3.48	3.48	3.47	3.73	3.48	3.32	3.28	2.70	3.15
Contract Closeout	3.10	2.80	2.71	3.05	2.39	2.26	2.36	2.04	2.11	1.83	

Question

Analyzing Contract Management Processes

1st:
Analyze by KPA.
Vertically,
reviewing all
Questions for
that KPA

2nd:
Analyze by
Process
Capability
Enablers.
Horizontally
across KPAs
reviewing only
subset of
questions in
each KPA





Process Capability Enablers

- Process Strength
- Successful Results
- Management Support
- Process Integration
- Process Measurement

Figure 9. Process Strength Survey Item Mean Scores

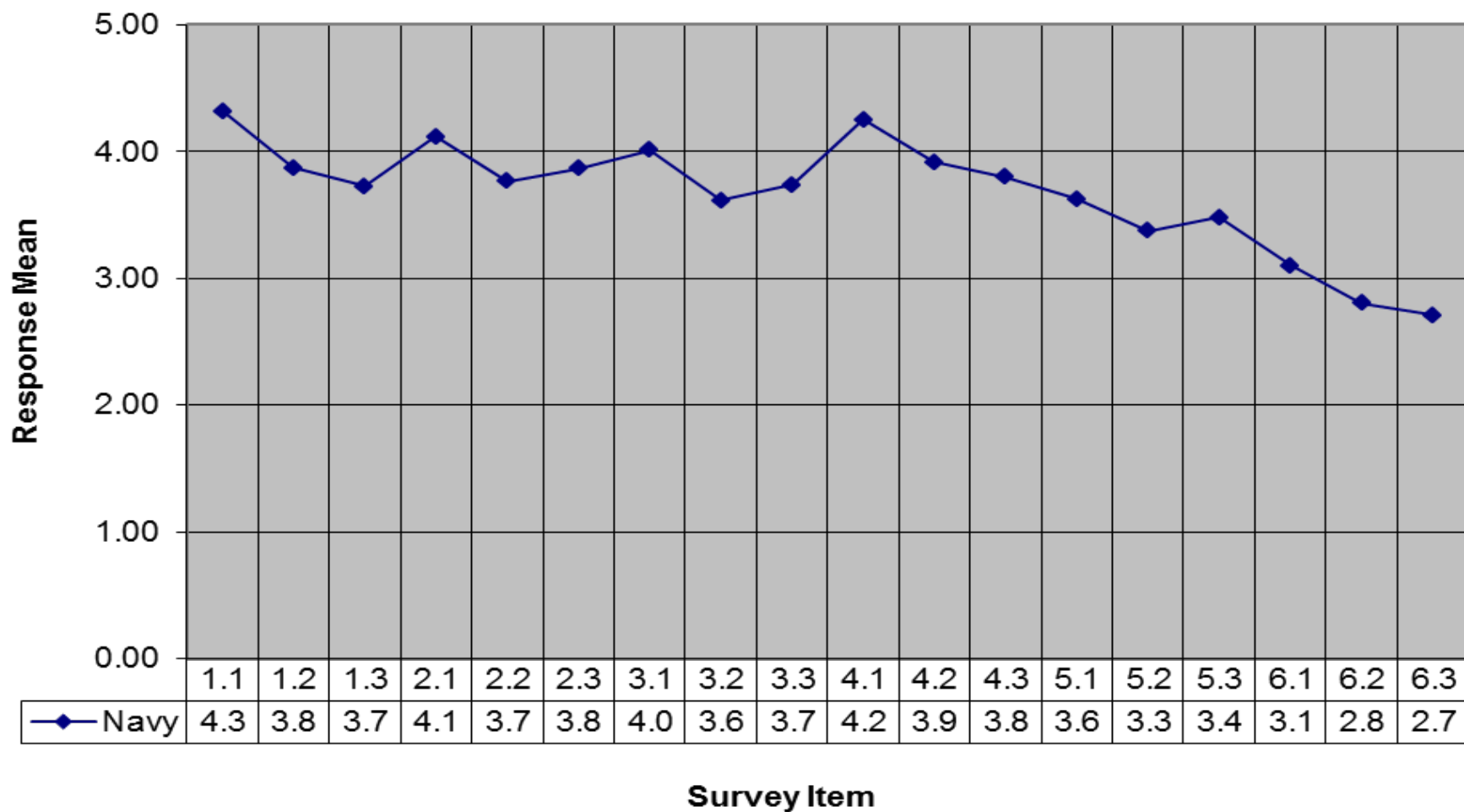


Figure 10. Process Results Survey Item Mean Scores

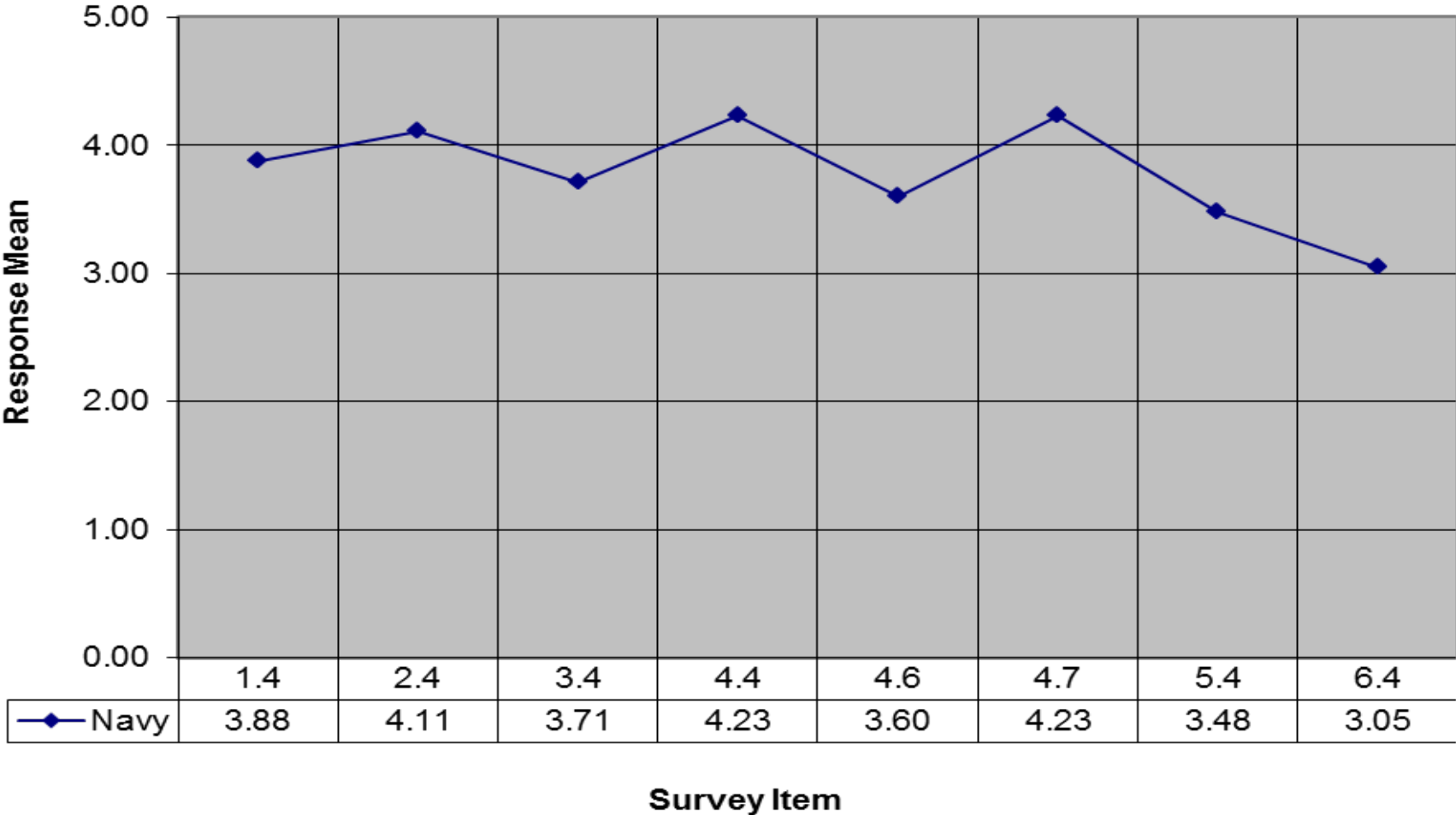


Figure 11. Management Support Survey Item Mean Scores

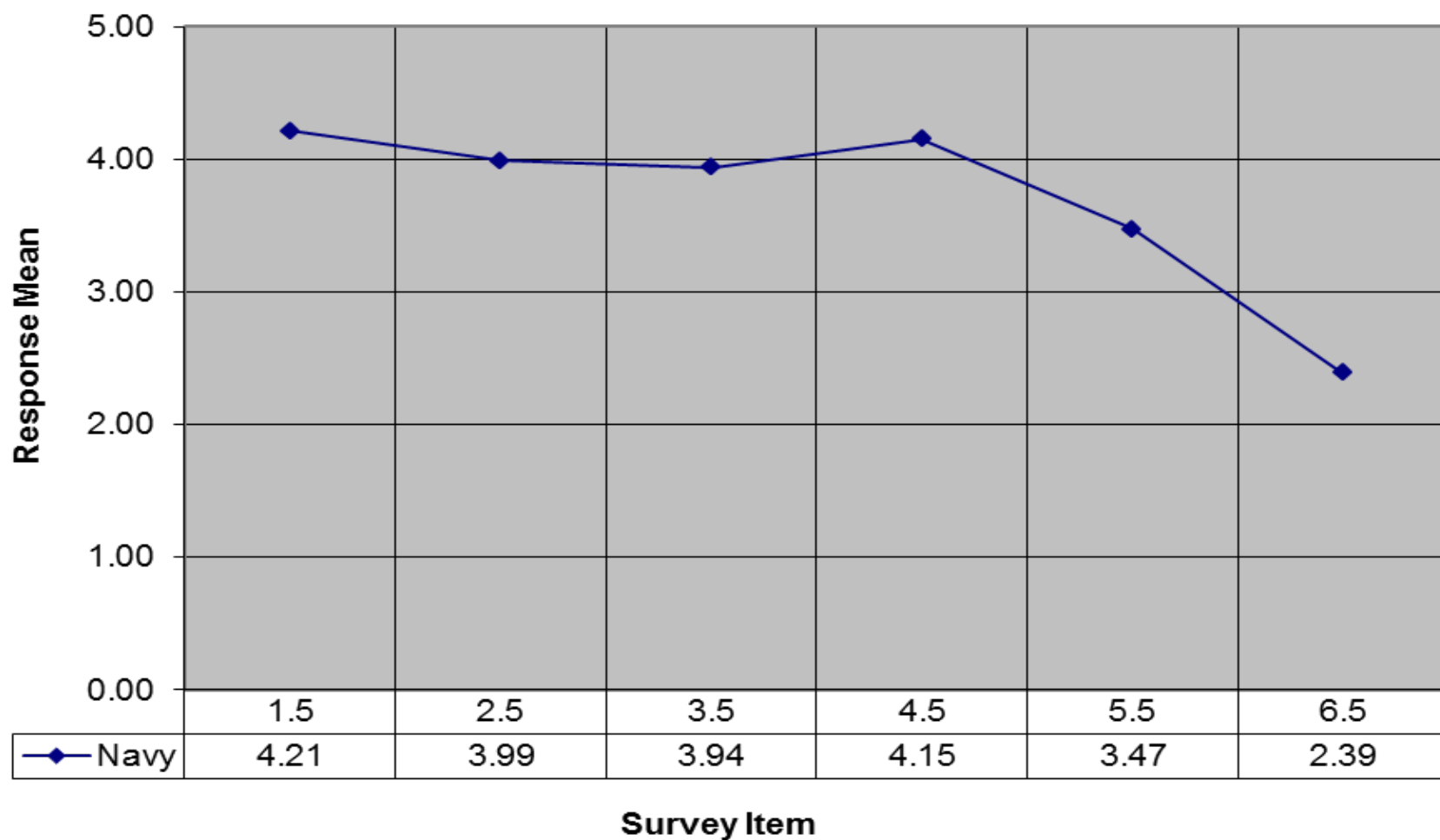


Figure 12. Process Integration Survey Item Mean Scores

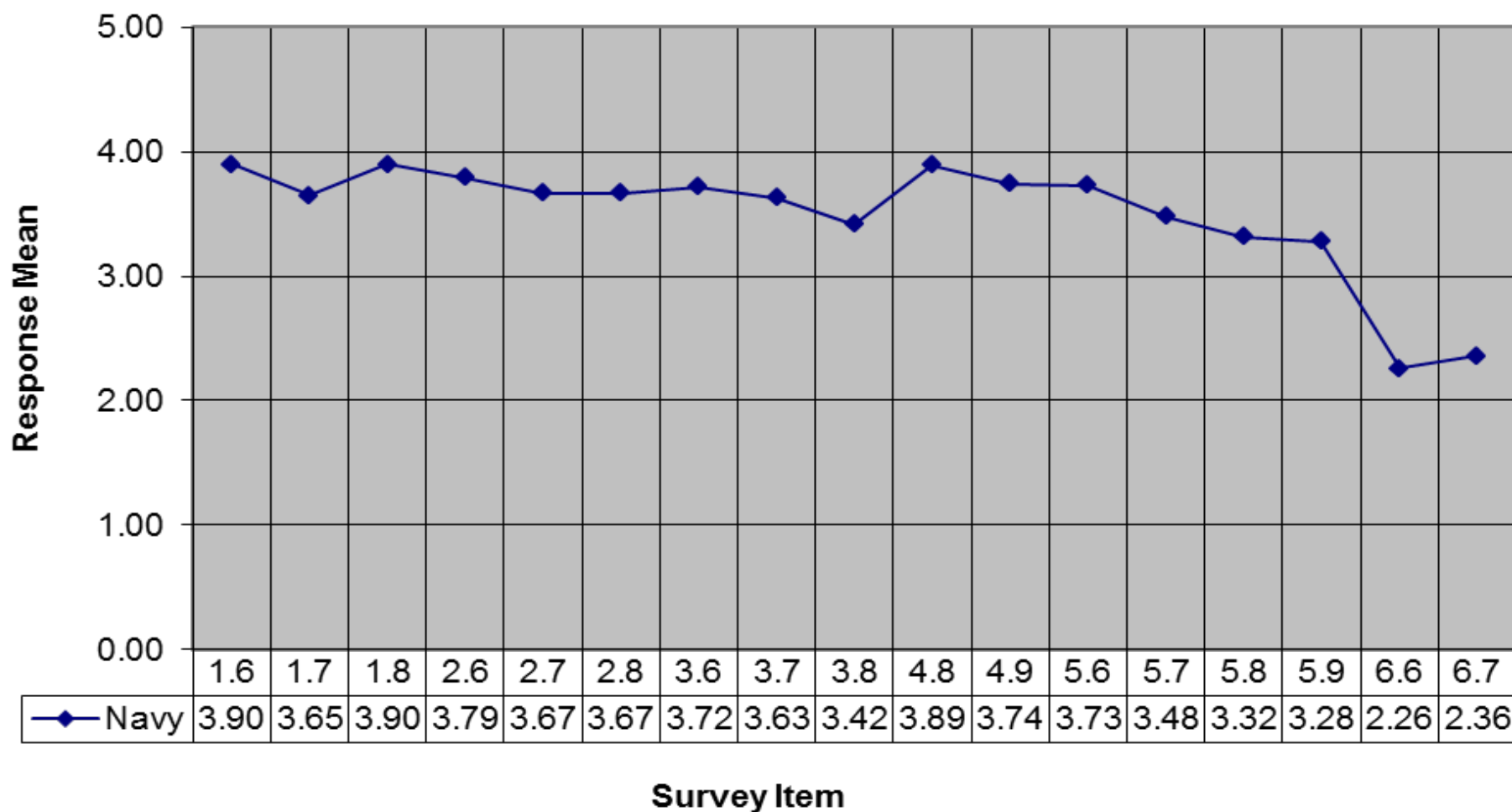
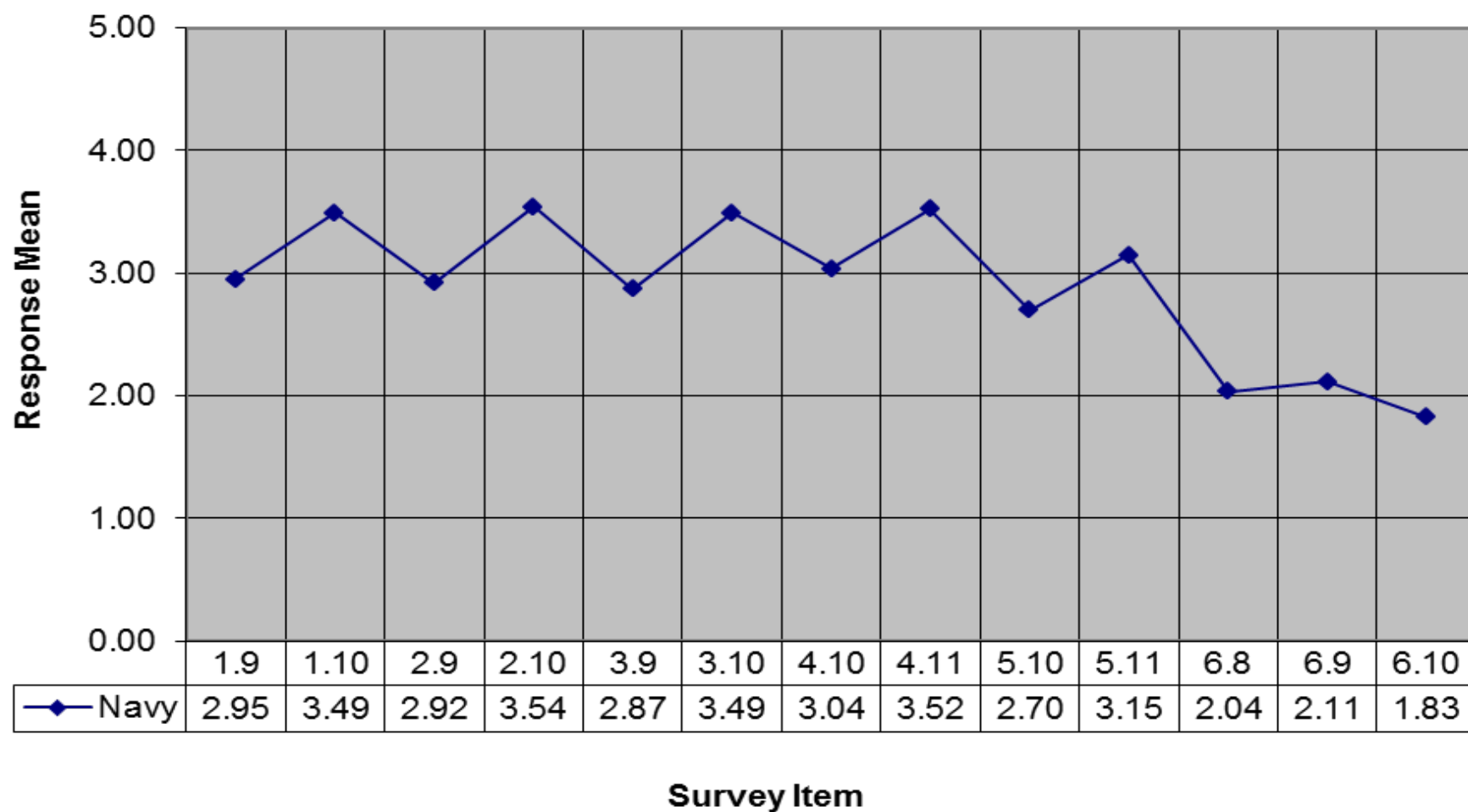


Figure 13. Process Measurement Survey Item Mean Scores





- Process capability is a critical component of auditability.
- The maturity model concept can be applied to assess contract management process capability.
- Assessment results can be used for identifying process deficiencies and process improvement and knowledge sharing opportunities.
- Bottom Line: Contracts are the products of the processes that were used to create them and will only be as successful as the processes used to manage them.



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Questions/Comments

Rene G. Rendon
Associate Professor
U.S. Naval Postgraduate School
Monterey, CA
rgrendon@nps.edu
831-656-3464





Back Up Slides

Table 1. Descriptive Statistics for the Contracting Process Area Scale Factors

Contracting process area scale factor	No. of items	<i>M</i> (<i>SD</i>)	Valid <i>N</i>	Cronbach's α
Procurement Planning	10	3.79 (.88)	185	.91
Solicitation Planning	10	3.74 (.87)	178	.92
Solicitation	10	3.61 (.93)	174	.92
Source Selection	11	3.85 (.90)	172	.93
Contract Administration	11	3.37 (1.03)	169	.94
Contract Closeout	10	2.46 (1.59)	168	.94



- Procurement Planning
 - Activities:
 - Conduct requirements analysis
 - Conduct market research
 - Develop preliminary budget and schedule
 - Develop preliminary work statement (SOW,...)
 - Determine procurement method, award strategy, and contract type



- Solicitation Planning
 - Activities
 - Prepare solicitation document (IFB, RFP)
 - Document program requirement
 - Identify potential sources
 - Determine contract type, procurement method, evaluation criteria, contract award strategy
 - Structure contract terms and conditions
 - Finalize work statement (SOW, SOO, PWS)



- Solicitation
 - Activities
 - Conduct solicitation conferences
 - Conduct site visits
 - Advertise procurement opportunity
 - Maintain qualified offeror's list



- Source Selection
 - Activities
 - Receive proposals
 - Evaluate proposals
 - Conduct negotiations
 - Award contract
 - Document contract agreement



- Contract Administration
 - Activities
 - Conduct pre-performance conference
 - Perform contractor surveillance
 - Monitor and measure contractor's performance
 - Process contractor payments
 - Manage changes to the contract



- Contract Closeout
 - Activities
 - Conduct final acceptance of supplies or services
 - Process final contractor payment
 - Conduct property dispositions
 - Document contractor's performance
 - Document lessons learned and best practices



- Process Strength
 - Established, documented, institutionalized, and mandated throughout the organization
 - Personnel held accountable for following established processes
 - Allowance for tailoring processes in consideration of unique aspects of project



- Successful Results
 - Contract management processes are focused on specific successful outcomes
 - Well-defined and validated requirement
 - Accurate and complete solicitation
 - Fair and ethical selection of contractor
 - Sufficient monitoring of contractor performance
 - Responsive processing of contractor payments and timely closeout of completed contracts



- Management Support
 - Senior organizational management involvement in contract management processes
 - Senior management provides guidance, direction, and approval, if required, of contract management strategy, decisions, and documents



- Process Integration
 - Contract management processes are integrated with other organizational core processes
 - Process integration includes use of cross-functional teams
 - The end-user customer is also involved in the procurement and is a member of the procurement project team



- Process Measurement
 - Organizations systematically use performance metrics to measure the quality and evaluate the effectiveness of the contract management processes
 - Lessons learned and best practices are used to identify continuous process improvement initiatives